



SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application number:
EP 17 79 34 72

Classification of the application (IPC):
C12N 9/84, C12P 21/00, C07K 14/62, C12P 21/02

Technical fields searched (IPC):
C12N, C12P

DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
X,D Y	US 2012270282 A1 (BEHROUZIAN BEHNAZ [US] ET AL) 25 October 2012 (2012-10-25) * par.6-8, 47, 48,par.260-305 *	1-10, 15 11-13
X	DATABASE USPTO Proteins [Online] "Sequence 90 from patent US 8569013.", 18 February 2015 (2015-02-18), retrieved from EBI accession no. USPOP:AJO36992, Database accession no. AJO36992, retrieved from EBI, XP002795023 * the whole document *	1
Y	US 2006264606 A1 (KJELDTSEN THOMAS B [DK] ET AL) 23 November 2006 (2006-11-23) * par.6, 9-11,17 *	11-13
X Y	SVOBODA IVAN ET AL: "Semisynthetic insulin analogues modified in positions B24, B25 and B29", BIOLOGICAL CHEMISTRY HOPPE- SEYLER, WALTER DE GRUYTER, BERLIN, DE, 01 June 1994 (1994-06-01), vol. 375, no. 6, pages 373-378 URL: https://epo.summon.serialssolutions.com/2.0.0/link/0/eLvHCXmWtV1NS8MwGA4OEXYRdYrzA3lQLxqwTbo2x010nt08eCr5xln7Qlawf--bNOIWQdSDl3QkoWx52nfvx5M8CF2ojGrOZUZKJjRhimiSpFSSGypo0YM_PONJNM-3bDzMH4dOrSFqtq77_hVp6AOs3c7ZP6Bd3xQ64DNgDi2gDu2vcB85AbfVDPw6dxRrpJqLWZWk8dl3E-v8Tkcfj4ytq0HKPNJp5qsJg5AfiNXeSW0iVRSic_y , DOI: 10.1515/BCHM3.1994.375.6.373, ISSN: 0177-3593 [retrieved on 31 October 2018 (2018-10-31)] XP009509059 * p.373 col.2 par.4-p.374 col.1 par.1p.375 Tbl.3p.376 col.1 par.1 *	15 11-13
Y	WANG Q C ET AL: "Application of an immobilized penicillin acylase to the deprotection of N-phenylacetyl insulin" <i>BIOPOLYMERS</i> , JOHN WILEY & SONS, INC, US, 01 January 1986 (1986-01-01), vol. 25, ISSN: 0006-3525, pages S109-S114, XP009509058 * p.S110 par.1, 5, p.S111 par.1, S114 par.3 *	11-13

The supplementary search report has been based on the last set of claims valid and
available at the start of the search.

Place of search The Hague	Date of completion of the search 17 October 2019	Examiner Bonello, Steve
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CATEGORY OF CITED DOCUMENTS

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| X: particularly relevant if taken alone | P: intermediate document |
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DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
Y	DIDZIAPETRIS R ET AL: "Penicillin acylase-catalyzed protection and deprotection of amino groups as a promising approach in enzymatic peptide synthesis" <i>FEBS LETTERS, ELSEVIER, AMSTERDAM, NL</i> , 05 August 1991 (1991-08-05), vol. 287, no. 1-2, DOI: 10.1016/0014-5793(91)80009-R, ISSN: 0014-5793, pages 31-33, XP025654023 * p.31 col.1 par.1,2, col.2 par.3, 6,p.32 col.2 par.4-p.33 col.1 par.1 *	11-13
Y	RICHARD VIRDEN: "Structure, Processing and Catalytic Action of Penicillin Acylase" <i>BIOTECHNOLOGY AND GENETIC ENGINEERING REVIEWS GB</i> 01 November 1990 (1990-11-01), vol. 8, no. 1, DOI: 10.1080/02648725.1990.10647869, ISSN: 0264-8725, pages 189-218, XP055633079 * p.192 Tbl.2, p.195 par.3,5 *	11-13

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search The Hague	Date of completion of the search 17 October 2019	Examiner Bonello, Steve
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LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-13, 15(all partially)

An engineered penicillin G acylase (PGA) having a polypeptide sequence the is at least 85% or more identical to SEQ ID NO.1036 and polynucleotides encoding it and methods for producing phenyl acetate mono- or di-protected insulin.

2. claims: 1-15(partially)

An engineered penicillin G acylase (PGA) having a polypeptide sequence the is at least 85% or more identical to SEQ ID NO.1194, 1288, 1262, 300, 14, 8, 4, respectively, and polynucleotides encoding it and methods for producing phenyl acetate mono- or di-protected insulin.

None of the further search fees have been paid within the fixed time limit. The present (supplementary) European search report has been drawn up for those parts of the European patent application which relate to the first mentioned in the claims, namely claims: 1-13, 15(all partially)

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search The Hague	Date of completion of the search 17 October 2019	Examiner Bonello, Steve
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ANNEX TO SUPPLEMENTARY EUROPEAN
SEARCH REPORT

Application number:
EP 17 79 34 72

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on 17-10-2019
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Patent document cited in search report			Publication date	Patent family member(s)	Publication date
US 2012270282	A1	25-10-2012	US	2010143968 A1	10-06-2010
			US	2012270282 A1	25-10-2012
			WO	2010054319 A2	14-05-2010
US 2006264606	A1	23-11-2006	EP	1687428 A1	09-08-2006
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			US	2006264606 A1	23-11-2006
			WO	2005047508 A1	26-05-2005

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